

An Investigation on Tuberculosis Outbreak in the Billiard Room in Northern Taiwan, 2015

Hsiao-Hsuan Chiang^{1*}, Yu-Ju Chou¹, Hao-Hsin Wu²,
Tzu-Chun Chen¹, Jhy-Wen Wu¹, Kun-bin Wu¹

Abstract

We received the report from the Mycobacterium Laboratory of Center for Research, Diagnostics and Vaccine Development that the Spoligotyping of *Mycobacterium tuberculosis* strains from 8 cases showed the same genotype C00036. These cases belonged to 2 counties, and from 5 different campus tuberculosis outbreaks. After investigation, we found that 3 cases attended junior high school A in Northern Taiwan. Based on the suggestions from expert board meeting, we collected the name list of all students and staffs in the period while the 3 cases were in the school. Then we compared the list to our system, and interviewed extensively those who were reported as tuberculosis cases about their activities. A billiard room in Northern Taiwan came across as the common source of infection. In December 2014, 3 staffs of that billiard room were reported as tuberculosis cases, and their tuberculosis genotype were the same. The billiard room followed public health authorities' suggestions and set another 3 fans for ventilation. Up to June 2017, no new tuberculosis cases related to the billiard room had been reported.

Keywords: tuberculosis, spoligotyping, outbreak, ambient air conditioning

¹Northern Regional Center, Centers for Disease Control, Ministry of Health and Welfare, Taiwan

²Division of Infection Control and Biosafety, Centers for Disease Control, Ministry of Health and Welfare, Taiwan

Corresponding author: Hsiao-Hsuan Chiang^{1*}

E-mail: cute65@cdc.gov.tw

Received: Sep. 19, 2017

Accepted: Dec. 07, 2017

DOI: 10.6525/TEB.201805_34(10).0001

A Cluster of Tuberculosis at a Hotel in Southern Taiwan, 2015

Shu-Hua Huang^{1*}, Hsin-Chun Lee¹, Chiou-Ling Fu¹,
Chia-Kuan Lin², Chiou-Yue You¹, Chao-Ching Chang¹

Abstract

During February and July 2015, two employees working at the same department in Hotel X were diagnosed as tuberculosis (TB) with bacterial strains of the same genotype. Case 1 was highly infectious with the positive result of sputum acid-fast stain and a cavitory pulmonary lesion. Some suspicious TB lesions on the chest-X-ray film were found, which were performed in a routine employees' health examination two months earlier before the onset of symptom, but neither medical evaluation nor treatment had been provided afterwards. Case 2, as a contact of Case 1, began to have the symptoms of active TB (fever and cough) 4 months after Case 1 was diagnosed as TB, although the first-month chest-X-ray for contact screening did not show evidence of active TB. The office of the department, located at the basement of the hotel building, was not well-ventilated. The control measures, including detection and treatment for contacts with latent TB infection, the use of air exhausting device to improve indoor ventilation and the integration of tracking mechanism into Employee Health Management Program, were implemented. Up to October 2017, no TB case was identified among the hotel employees after the abovementioned intervention.

Keywords: tuberculosis, cluster, ventilation, environment

¹Kaohsiung-Pingtung Regional Center, Centers for Disease Control, Ministry of Health and Welfare, Taiwan

²Disease Control Division, Department of Health, Kaohsiung City Government, Taiwan

Corresponding author: Shu-Hua Huang^{1*}

E-mail: treaty@cdc.gov.tw

Received: Dec. 13, 2017

Accepted: Jan. 18, 2018

DOI: 10.6525/TEB.201805_34(10).0002

week 18–19(Apr. 29–May. 12, 2018)

DOI: 10.6525/TEB.201805_34(10).0003

Weekly Data of Notifiable Infectious Diseases (by week of diagnosis)

Case diagnosis year		Week 18★		Week 1–18			
Classification	Disease Diagnosed	2018	2017	2018		2017	
				Total cases★	Imported cases	Total cases★	Imported cases
Category I	Plague	0	0	0	0	0	0
	Rabies	0	0	0	0	0	0
	SARS	0	0	0	0	0	0
	Smallpox	0	0	0	0	0	0
Category II	Acute Flaccid Paralysis	1	0	34	0	14	0
	Acute Viral Hepatitis type A	2	2	30	11	227	22
	Amoebiasis	8	6	108	41	120	66
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	5	5
	Cholera	0	0	0	0	0	0
	Dengue Fever	2	6	41	41	82	82
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	1	0	1	0
	Malaria	0	1	0	0	1	1
	Measles	0	0	25	7	5	5
	Meningococcal Meningitis	0	1	5	1	6	0
	Paratyphoid Fever	0	0	1	0	2	2
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	2	1	0	0
Shigellosis	6	7	54	14	77	30	
Typhoid fever	0	0	6	4	7	6	
West Nile Fever	0	0	0	0	0	0	
Category III	Acute Viral Hepatitis type B	2	2	49	2	55	3
	Acute Viral Hepatitis type C	14	2	161	2	78	1
	Acute Viral Hepatitis type D	0	0	0	0	1	0
	Acute Viral Hepatitis type E	0	0	3	0	7	2
	Acute Viral Hepatitis untype	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	9	0	1	0
	Haemophilus Influenza type b Infection	0	0	2	0	2	0
	Japanese Encephalitis	0	0	0	0	0	0
	Legionellosis	3	5	53	0	42	6
	Mumps	16	19	199	3	225	2
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	1	9	0	10	0
	Tetanus	0	0	4	0	3	0
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Influenza	1	0	17	0	6	1
	Complicated Varicella	0	3	5	0	10	1
	Endemic Typhus Fever	0	0	0	0	0	0
	Herpesvirus B Infection	11	9	216	0	203	2
	Invasive Pneumococcal Disease	0	0	13	0	24	0
	Leptospirosis	8	0	48	0	0	0
	Lyme Disease	0	0	0	0	0	0
	Melioidosis	1	0	6	0	7	0
	Q Fever	0	0	2	0	4	0
	Scrub Typhus	2	4	92	0	101	0
	Toxoplasmosis	5	14	639	4	200	3
	Tularremia	1	0	6	0	6	0
Category V	Ebola Virus Disease	0	0	0	0	0	0
	Marburg Hemorrhagic Fever	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	0	0	0	0
	Lassa Fever	0	0	0	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
	Middle East Respiratory Syndrome Coronavirus	0	0	0	0	1	1
	Yellow Fever	0	0	0	0	0	0
	Zika Virus Infection	0	0	0	0	0	0

- ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
- The following chronic diseases are excluded from the table: MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen Disease and Creutzfeldt-Jakob Disease.
- Numbers of mumps, neonatal tetanus and tetanus cases are summed up by the week of report.
- Since 2016/1/22, "Zika Virus Infection" was listed as a Notifiable Infectious Disease.
- Since 2018/1/1, "Listeriosis" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Nineteen clusters were reported, including 3 tuberculosis cluster, 10 diarrhea clusters, 2 influenza-like illness cluster, and 4 varicella clusters.

Imported Infectious Diseases

- There were 8 confirmed imported cases from 5 countries during week 18 of 2018.

Disease	Country					Total
	Indonesia	Thailand	Malaysia	Philippines	Cambodia	
Amoebiasis	3			1		4
Acute Hepatitis A		1	1			2
DF		1			1	2
Total	3	2	1	1	1	8

Note: The table summarized the number of imported cases that were either **confirmed** or **updated** in the given week.

- There are 128 confirmed imported cases from 16 different countries in 2018. The top 3 countries are Indonesia (44), Philippines (18), Thailand (11) and Malaysia (11).
- Top 3 imported diseases are Dengue Fever (41), Amoebiasis (40) and Shigellosis (14).

Summary of Epidemic

- **Measles** : As the follow-up periods for the airline crew members and the southern hospital clusters towards the end, the risk of epidemic decreased gradually. However, we should stay alert to avoid the occurrence of sporadic measles cases.

Weekly Data of Notifiable Infectious Diseases (by week of diagnosis)

Case diagnosis year		Week 19★		Week 1-19			
Classification	Disease Diagnosed	2018	2017	2018		2017	
				Total cases★	Imported cases	Total cases★	Imported cases
Category I	Plague	0	0	0	0	0	0
	Rabies	0	0	0	0	0	0
	SARS	0	0	0	0	0	0
	Smallpox	0	0	0	0	0	0
Category II	Acute Flaccid Paralysis	2	0	36	0	14	0
	Acute Viral Hepatitis type A	3	9	33	15	236	24
	Amoebiasis	7	7	115	43	127	73
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	1	1	5	5
	Cholera	0	0	0	0	0	0
	Dengue Fever	3	1	44	44	83	83
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	1	0	1	0
	Malaria	0	0	0	0	1	1
	Measles	0	0	25	7	5	5
	Meningococcal Meningitis	0	0	5	1	6	0
	Paratyphoid Fever	0	0	1	1	2	2
	Poliomyelitis	0	0	0	0	0	0
	Rubella	1	0	3	3	0	0
	Shigellosis	1	5	55	14	82	31
	Typhoid fever	1	1	7	5	8	7
West Nile Fever	0	0	0	0	0	0	
Category III	Acute Viral Hepatitis type B	1	5	50	2	60	3
	Acute Viral Hepatitis type C	6	4	167	2	82	1
	Acute Viral Hepatitis type D	0	0	0	0	1	0
	Acute Viral Hepatitis type E	0	0	3	0	7	2
	Acute Viral Hepatitis untype	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	0	0
	Enteroviruses Infection with Severe Complications	0	0	9	0	1	0
	Haemophilus Influenza type b Infection	0	0	2	0	2	0
	Japanese Encephalitis	0	0	0	0	0	0
	Legionellosis	3	7	56	1	49	7
	Mumps	12	16	211	3	241	2
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	1	9	0	11	0
	Tetanus	0	0	4	0	3	0
	Category IV	Botulism	0	0	0	0	0
Brucellosis		0	0	0	0	0	0
Complicated Influenza		1	0	18	0	6	1
Complicated Varicella		0	0	5	0	10	1
Endemic Typhus Fever		0	0	0	0	0	0
Herpesvirus B Infection		10	13	226	0	216	2
Invasive Pneumococcal Disease		1	0	14	0	24	0
Leptospirosis		4	0	52	0	0	0
Lyme Disease		0	0	0	0	0	0
Melioidosis		0	0	6	0	7	0
Q Fever		0	0	2	0	4	0
Scrub Typhus		6	4	98	0	105	0
Toxoplasmosis		14	26	653	4	226	3
Tularremia		0	0	6	0	6	0
Category V	Ebola Virus Disease	0	0	0	0	0	0
	Marburg Hemorrhagic Fever	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	0	0	0	0
	Lassa Fever	0	0	0	0	0	0
	Rift Valley Fever	0	0	0	0	0	0
	Middle East Respiratory Syndrome Coronavirus	0	0	0	0	1	1
	Yellow Fever	0	0	0	0	0	0
	Zika Virus Infection	0	0	0	0	0	0

1. ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
2. The following chronic diseases are excluded from the table: MDR-TB, Tuberculosis, Syphilis, Gonorrhoea, HIV Infection, AIDS, Hansen Disease and Creutzfeldt-Jakob Disease.
3. Numbers of mumps, neonatal tetanus and tetanus cases are summed up by the week of report.
4. Since 2016/1/22, "Zika Virus Infection" was listed as a Notifiable Infectious Disease.
5. Since 2018/1/1, "Listeriosis" was listed as a Notifiable Infectious Disease.

Suspected Clusters

- Forty-one clusters were reported, including 14 tuberculosis clusters, 12 diarrhea clusters, 5 upper respiratory tract infection clusters, 4 influenza-like illness clusters, and 6 varicella clusters.

Imported Infectious Diseases

- There were 11 confirmed imported cases from 7 countries during week 19 of 2018.

Disease \ Country	Malaysia	China	Myanmar	Morocco	Vietnam	Indonesia	Hong Kong	Total
DF	1		2					3
Acute Hepatitis A	2			1				3
Amoebiasis					1	1		2
Rubella		1					1	2
Legionellosis		1						1
Total	3	2	2	1	1	1	1	11

Note: The table summarized the number of imported cases that were either **confirmed** or **updated** in the given week.

- There are 139 confirmed imported cases from 18 different countries in 2018. The top 3 countries are Indonesia (45), Philippines (18), and Malaysia (14).
- Top 3 imported diseases are Dengue Fever (44), Amoebiasis (42), and Shigellosis (14).

Summary of Epidemic

- **Measles** : As the follow-up period has ended for all the measles clusters, the national epidemic is over. However, the international measles activity is still high, we should stay alert for the potential risk of imported measles cases.
- **Enterovirus** : Most reported enterovirus cases experienced mild symptoms. However, cases of enterovirus infection with severe complications are likely to occur sporadically.

The Taiwan Epidemiology Bulletin series of publications is published by Centers for Disease Control, Ministry of Health and Welfare, Taiwan (R.O.C.) since Dec. 15, 1984.

Publisher: Jih-Haw Chou

Editor-in-Chief: Yung-Ching Lin

Executive Editor: Hsueh-Ju Chen, Hsin-Lun Lee

Address: No.6, Linsen S. Rd, Zhongzheng District, Taipei City 10050, Taiwan (R.O.C.)

Telephone No: +886-2-2395-9825

Website: <http://www.cdc.gov.tw/rwd/english>

Suggested Citation:

[Author].[Article title].Taiwan Epidemiol Bull 2018;34:[inclusive page numbers]. [DOI]